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ABSTRACT

Fvaluations were obtained with the same questionnaire item in 1968, 1969, 1970, and 1972 at Carnegie-Hellon University. The evaluations of marijuana and LSD experiences reported in 1968 were very similar to those at California Institute of Technology in 1967. Evaluations varied by drug, but were predominantly "beneficial and helpful" (marijuana, hallucinogens, tranquilizers/barbiturates), or "no particular effect" (amphetamines, beer, liquor, tobacco, narcotics). In the class of 1972, evaluations were positively related to number of usage experiences, and remained steady over time for all drugs except hallucinogens; these were seen less positively in later surveys. More negative experiences resulted from hallucinogen use than from any other drug. Statements about drug effects were evaluated by the subjects in terms of their own experiences and expectations and those of their peers. Counselors and educators should be aware that most drug-related experiences are viewed by students as either beneficial or neutral. (Author/PC)

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Students' Evaluations of their Psychoactive Drug Use

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Carnegie-Mellon University

Consider the disparity between the following quotations:

"The real reasons for the lack of success (of abstinence programs) were the strong collective belief held by the youths that their use of drugs was not harmful and their ability to put up effective arguments, based on personal experience and observation, against claims of such harm." (Blumer, 1967, p. 3)

"Unfortunately, some of us insist on learning about drugs by direct experience." (Kaplan, 1970, p. 61)

The realization that prevention programs cannot be successful if they are based on communications which are rejected by the audience because they contradict personal experience is important, and, judging from the second quote taken from a popular high school drug education text, not completely obvious. This paper provides some data on the reactions of students to their drug usage, offers theories of these reactions, and discusses their practical implications for preventive and educational programs.

There is only a very limited amount of systematic data available on the personal experiences of student psychoactive drug users. While there have been intensive studies of the immediate subjective effects of particular drugs (Tart, 1971; Goode, 1970; Halikas, Goodwin, & Guze, 1971; Hochman, 1972; Aaronson & Osmond, 1970; Barber, 1970), these have concentrated on marijuana and LSD, and usually report data from very restricted samples tested in clinical or laboratory settings. Furthermore, these studies



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are heavily concerned with moods and somatic sensations, and do not systematically report the user's overall general evaluation of his usage experiences. Our purpose here is to report student's evaluative judgments of their usage of eight categories of psychoactive drugs. We shall also report data on the distribution of these responses over two universities, four years, and varying amounts of usage experience.

In 1967, Imperi, Kleber and Davie (1968) surveyed Yale and Wesleyan University undergraduates in one of the earliest studies of student use of the "new" psychoactive drugs, marijuana and the hallucinogens. They obtained reports of some unpleasant effect from 41% of the Yale and 35% of the Wesleyan users. Some beneficial or pleasant effects were reported by 78% of users from Yale and 92% at Wesleyan (where use of marijuana was twice, and of LSD was 3 1/2 times, that reported at Yale). This relationship between greater use and more positive experiences was also reported for marijuana use by male undergraduates in another 1967 study at Wesleyan (Haagen, 1970).

A Spring 1970 national survey of college students inquired into the respondent's satisfaction with six types of drugs (Groves, Rossi, & Grafstein, 1970). The percentage of users who responded that their experiences were "very" or "moderately" satisfying (as versus very or moderately unsatisfying) were: tobacco, 56%; alcohol, 84%; marijuana, 79%; "pills", 76%; "psychedelics", 87%; and heroin, 86%. The largest response of "very unsatisfying" was given to tobacco (26%) and marijuana (12%).

These studies suggest that positive or neutral experiences are much more common than negative ones, that there are differences among substances in distributions of evaluations, and that evaluations are associated



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with the respondent's frequency of use. We report here data taken from a standard item used in surveys at two predominately technical universities, and obtained four times over four years in one of them.

Method

In March 1967 Eells (1968) conducted a survey of marijuana and LSD use at California Institute of Technology (CIT). In 1968 we surveyed the drug use of the entire student body of Carnegie-Mellon University (CMU) using a questionnaire approach similar to that used by Eells (Goldstein, Korn, Abel & Morgan, 1970). Specifically, we employed his method of having respondents return a separate, signed "Directions" card so that nonrespondents could be identified and solicited for responses while the anonymity of the respondents was protected. We resurveyed the Class of 1972 at the end of their freshman year (spring 1969), the beginning of their junior year (fall 1970), and at the end of their senior year (spring 1972). The average response rate was 71%, however rates of marijuana and other drug usage obtained in the surveys did not differ significantly from those obtained from representative captive groups of students with 100% response rates (Goldstein, Gleason and Korn, 1974).

The item used to assess personal experience of use was a five-choice alternative used by Eells (1968); the exact wording of the alternatives, taken from a privately circulated report (Eells, no date), with the symbolic abbreviations employed here, is: It has been very helpful and beneficial to me, with no serious harmful effects (++); It has been helpful and benficial, but there have been harmful effects also (+-); I have had no particular



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effect from it--either beneficial or harmful (0); I have had mostly a harmful, or unpleasant experience with this drug, but it did not seem serious to me (-); and I have had a very disturbing, very upsetting, or seriously harmful experience with this drug(--). The alternatives as listed seem to vary from psychologically most positive to most negative, but the order of the second and third alternatives seems ambiguous. We do not know whether mixed positive and negative experiences taken together (+-) are regarded as more or less positive than the experience of having no particular effect (0). It is likely that the ordering of those two alternatives varies with the individual respondent and perhaps even with each drug.

The drug use assessed in our surveys w... categorized into eight groups: beer, hard liquor, tobacco, marijuana (including hashish), tranquilizers and barbiturates, amphetamines, the hallucinogens (LSD, mescaline, etc.), and narcotics (heroin and opium). This ordering of the drugs represents the order of frequency of use of the substances in the 1968 survey, and it possesses hierarchical properties: use of a given drug indicates far beyond chance that one has also used substances listed before it (Goldstein, et al., 1974). Of the hallucinogens, only data for LSD are reported for the 1968 and 1969 surveys in order to make them comparable to the Eells data. Students were only to report use which was not on medical advice. This study also uses data on the frequency of usage as categorized into the following groupings: once, two to 10 times, 11 to 50 times, and over 50 times.

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Results

Comparison of two universities. The reliability of the personal experience item may be assessed by comparing the distribution of responses to the same drugs at comparable times and universities. Eells' survey of marijuana and LSD use at California Institute of Technology in 1967 may be compared to our survey of 1968. Both of these schools emphasize science and engineering, and in both cases we are reporting data from the undergraduates only. Table 1 reveals that the reaction to marijuana

Table 1 about here

at both schools, with the only significant difference being that the latter response was used more frequently at CIT. For LSD the distribution did not differ significantly between the two schools, and about half of the responses were "very beneficial" with almost all of the remainder being divided between "helpful and beneficial, but harmful also," and "no effect."

Changes over time. Changes in the distribution of reported experiences for marijuana and LSD for the remaining Carnegie-Mellon surveys of the Class of 1972 are also presented in Table 1. Despite the changes in age and usage patterns in this class (Goldstein, et al., 1974), there are only two further significant differences in the distribution of experiences, and these are for LSD. In both cases the shifts in the distributions indicate that evaluations became less positive in the later survey.

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<u>Differences among drugs</u>. While experiences were relatively stable over the two universities and over four years at CMU, their distribution was not independent of drug, as indicated in Table 2.

Table 2 about here

These data, from the seniors in 1972, indicate that the modal response was "very beneficial" for marijuana, tranquilizers and barbiturates, and for hallucinogens, while it was "no effect" for the remaining drugs. If we concentrate upon harmful, unpleasant, or upsetting experiences by summing the second (++), fourth (-), and fifth (--) alternatives we see that the drugs most likely to result in such experiences were the hallucinogens (47.7%), tobacco (38.2%), and amphetamines (37.8%). If we impose the stricter criterion of a summation of the fourth and fifth alternatives, which eliminates any mitigating helpful or beneficial experiences, we find that hallucinogens and tobacco were almost tied as most negative (20.6% and 20.5% respectively); these are followed by narcotics (10.8%), and amphetamines (10.4%), in another near tie. The drug group receiving the most "very disturbing" responses (7.5%) is the hallucinogens, while alcohol is least likely to be so rated.

The relative degree of negative outcome experienced with the various drugs can also be assessed by means of a question inquiring into reasons for decreasing or terminating use. One of the alternative answers provided for this question was "unsatisfactory personal experience with the substance."

The bottom row of Table 2 reports the percent of all users of each substance who selected this alternative. The percentage is greatest among the



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hallucinogen users (20%), again corroborating our finding that usage of these substances was more likely than use of the other drugs to cause the user to experience a negative outcome. The next largest percentage of unsatisfactory experiences was associated with use of the amphetamines, 15.4%.

Among all other drug groups the equivalent figure ranges from 8.8% to 11.1% except for the narcotics where it is only 2.1%. The meaning of "unsatiffactory personal experience" was left for the individual user to define; however it is interesting that this criterion produces a result which is in agreement with that obtained from the evaluation of experience item, namely that users of hallucinogens were more likely to maport negative experiences than users of any other substance studied.

Experience and frequency of use. The sparse data available from previous studies suggest that the degree of favorability of the user's reported experience increases with his accumulated frequency of use of the drug. We examined this relationship for each of the eight drugs in the senior 1972 survey which is also the survey reporting the greatest amount of accumulated drug experience. The distribution of experience responses is skewed toward positive evaluations for all of the substances (Table 2). If, as suggested above, the ordering of the (-+) and (0) alternatives were reversed, then the skewness of the distributions toward positive evaluations would be even more apparent. When we examine the experience by frequency of use tabulations (Table 3) we see that the pattern for every drug is

Table 3 about here



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remarkably similar: among the one-time users almost all of the responses are "no effect," with any remainder being equally distributed in both directions from this middle response. As we progress through the three levels of increasingly frequent use, the responses shift to the first two alternatives of the experience scale, i.e., to "very beneficial" and to "helpful and beneficial, but harmful also."

The modal response among the most frequent users is "very beneficial" for marijuana, and for tranquilizers and barbiturates. The modal response among the heaviest users of amphetamines and hallucinogens was "helpful and beneficial, but harmful also." "No effect" was the modal response among the most frequent users of beer, liquor, narcotics and tabacco. Care must be used in interpreting the results for narcotics and hallucinogens since only a small number of frequent users are in the sample (and no respondent reported more than 50 episodes of narcotic use). Thus, among students having only one usage experience, "no particular effect" was the most common experience, but those accumulating more usage episodes tend to report either all positive or mixed, positive and harmful experiences.

Discussion

In this and similar studies most usage was seen as beneficial or as having had no particular effect. It is now well accepted that subjective reactions to psychoactive drugs are influenced by the interaction of physical and psychological factors, specifically the nature of the substance taken, the physical and psychological state of the user, and the



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setting in which usage occurs. In the Carnegie-Mellon sample most nonmedical psychoactive drug use was initiated and carried out in the company of close friends and the majority of reasons given for usage were hedonistic or satisfaction of curiosity (Goldstein, et al, 1970; Goldstein & Korn, 1972).

Numerous investigators have demonstrated or argued convincingly that evaluations of drug effects by users are strongly influenced by expectations and the setting, for example, Becker (1963, Chapter 3; 1967) with regard to marijuana and the hallucinogens; Weil for marijuana (1970); Schachter for adrenalin and marijuana (1964), and Nowlis and Nowlis (1956) for depressants.

The first users of previously untried drugs in a given population should have a greater psychological problem than subsequent users who can avail themselves of the experience of the avant-garde, in assuring themselves that use will be safe and beneficial. In comparisons of junior classes in 1968 and in 1970, and of earliest and later-starting students (Goldstein & Korn, 1972), we found that the elaborate preparation made before using hallucinogens, such as the study of mystical texts, chanting, meditation, and so forth, had largely disappeared. Also the reasons for taking the substances have shifted away from ideological-religious to hedonistic-recreational ones. As the early users learned that the warnings of highly probable physical and psychological harm were exaggerated they transmitted this information to their friends. This helped to reduce fear and created a self-fulfilling prophecy wherein calm users experienced fewer negative reactions. As usage diffused outward to those with less of an ideological, mystical or introspective orientation, it became demystified, simplier, more casual and



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routinized.

Even in 1968 negative reactions to usage were relatively uncommon.

Thus, these experiences of the first users created expectations which were a major determinant of the experiences of the later users. It follows that amount of usage and evaluations of that usage should be positively related, as was found here. Our data show that the lowest frequency users reported largely neutral experiences. We know that the lighter users were less committed to the safety of the drugs, had a relatively small proportion of their friends who used them, (Goldstein et al, 1970), and they probably know less of how to obtain the desired effects (Becker, 1963). Here we regard "how to obtain the desired effect" as consisting of both techniques of usage and of the process of perceiving or labeling of inner reactions as constituting the desired results.

Several theories can explain the obtained relationship between frequency of usage and positivity of evaluation. Initiation to usage is heavily influenced by peers (Johnson, 1973; Goldstein et al., 1970). Once started, social learning and influence processes lead the novice user to label his usage positively (Becker, 1963 1967; Schachter, 1964, pp. 77-78; Valins & Nistitt, 1971; Carlin, Bakker, Halpern, & Post, 1972). While the invocation of principles of learning to explain the acquisition of usage techniques and the identification and labeling of internal drug-related sensations is reasonable and common, there is an alternate explanatory mechanism which may be superior. Bem's (1972) self-perception theory concerns the relationship between attitudes and behavior. He asserts that we infer our attitudes, including those concerning internal bodily states, from our behavior. In



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effect, a drug user might arrive at an answer to the question, "Are your experiences with drug X pleasurable?" by observing, "Yes, I guess so, since I am always using it." Bem's position has good empirical support and the advantage of being well-suited to explaining private, internal events. The typical learning-reinforcement position, however, requires the differential reinforcement by others of the user's responses. This process is difficult to accomplish when the events to be reinforced are internal such as the sensations resulting from ingesting a drug. The emphasis given here to set and setting as determinants of reactions to drug use is not meant to indicate that properties of the drug itself are irrelevant. Clearly they are not; rather pharmacological and psychological variables interact (Carlin et al, 1972; Schacter, 1964). Further, negative reactions are not necessarily as rare as we have found them to be. Annis and Smart (1973) found adverse reactions and recurrences of negative effects due to marijuana to characterize from 13% to 37% of various samples of Canadian high school users. Their results strongly confirm ours in that negative reactions became much less prevalent as the frequency of marijuana usage increases. The high incidence of adverse reactions they discovered occurred predominately among low frequency or novice users.

Counselors, teachers, and therapists who are not cognizant of the experiences and interpretations of students will have difficulty in helping them to prevent or overcome drug-related problems. We found that students evaluated drug educational efforts primarily on the basis of their honesty, and that organized school programs were often rejected because they lacked credibility (Goldstein, 1972). In a study of students enrolled in a college



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drug course we found that the source of advice on personal drug use preferred by most students was a close friend (58.6%), the counseling center (12.5%), and a physician (10.9%), (Korn & Goldstein, 1973; p. 363). These results uggest that a major reason that peers are preferred is that their information on drug effects corresponds more closely than does warnings from establishment sources to what the inquirer himself has experienced or come to expect from his friends. To be effective in educational, protective, or therapeutic activity with drug users or potential users we must realize that our client's or student's evaluations or expectations are much more likely to be positive or neutral than they are to be negative.



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Table 1

Personal Experience with Marijuana and Hallucinogens at California

Institute of Technology and Carnegie-Mellon University

		A11 1	Indergr	All Undergraduates			Carnegie-Mellon University	Mellon Ur	niversity		
G.	Ruslinstfon	CIT - 1967		CMU - 1	896	Fresh.	Spr. '69	Juniors	Fall '70	Senfors	Spr. '72
		Marij.	ISD	Marij.	ISD	Marij.	LSD	Marij.	Hallen	Marij.	Hallen
		n=126	ı r 58	r= 472	n= 82	n=145	n=38	n=229	n=73	n=250	n=107
î	Very helpful & bene-										
	ficial, no serious harm	42.1	46.6	48.7	52.4	53.8	55.3°	52.8	38.4	47.2	34°6°
£	Helpful & beneficial,										
	but harm also	7.1	29.3	7.4	21.9	13.1	21.0	9.9	26.0	10.4	27.1
6	No particular effect				,	•					
	either beneficial or harm	50°08	22.4	38.6	18.4°	29.7	2.6 ^b	39.3	16.4	37.2	17.8
\mathfrak{T}	Mostly a harmful or un-	_									
	pleasant experience, but										
	did not seem serious	8.0	0.0	3.0	6.1	2.1	13.2	6.0	13.7	3.2	13.1
3	Very disturbing, very up-										
	setting, or seriously harm-										
	ful experience.	0.0	1.7	2.3	1.2	1.4	7.9	9.0	5.5	2.0	7.5

Tests Note -- Pigures are percentages; those with same superscirpt are significantly different at p < .05.

conducted with drug and within rows only.



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Table 2 Evaluation by Drug (Seniors in 1972)

Evaluation	Beer	Liquor	Tobacco	Marijuana	Tranq./Barb.	Amphetamines	Hallucino- gens	Narcotics
	n=370	n=381	n=249	n=250	n=92	n=106	n=107	n=37
(++) Very helpful & Beneficial, no serious harm	25.6	21.8	9.6	47.2	46.7	25.5	34.6	13.5
(+-) Helpful & beneficial, but harm also	14.3	17.0	17.7	10.4	8.	27.4	27.1	5.4
	57.0	47.0	52.2	37.2	34.8	36.8	17.8	70.3
	8	5.0	17.7	3.2	6.5	8.5	13.1	8.1
	0.3	0.5	2.8	2.0	2.2	1.9	7.5	2.7
Sum of (+-), (-), and () Sum of (-), and () 'Unsatisfactory	18.4	5.5	38.2	15.6	18.5	37.8	47.7	16.2 10.8
personal experience" caused termination or cessation of use	11.1	10.3	10.3	10.3	ထ	15.4	20.0	2.1

Note.-Data are percentages of users of the given drug.

Table 3

Evaluation by Frequency of Use (Seniors in 1972)

Group				Evaluation		
	of Use	++	+-	0		
Beer	Once	0	0	10	0	0
neer	2-10	5	3	46	7	Ŏ
	11-50	19	3 3	57	4	0
			47		3	
	> 50	67	4/	98	3	1
Liquor	Once	0	0	3	2 5 11 3	0
	2-10	3	6	31	5	0
	11-50	28	24	86	11	0
	> 50 ,	60	41	75	3	0 2
Tobacco	Once	0	o ·	10	9	2
	2-10	4	ĭ	46	12	2 1
	11-50	6	i	21	6	•
	> 50	14	42	53	17	2 2
	/ 30		42))	**	4
Mari juana	Once	0	0	11	0	3 1
J	2-10	10	4	34	4	1
	11-50	29	4 8	25	0	1
	> 50	79	14	23	3	0
Tranq./Barb.	Once	3	0	9	2	1
rrand. / paro.	2-10	16		19	2 3	i
	11-50	14	9	4	ŏ	Ō
	> 50	10	5 2 • 2	Ŏ	ŏ	Ŏ
			. 1	.,		•
Amphetemines	Once	0	•	11	2	0
	2-10	13	8	23	>	1 1
	11-50	8	8 11 9	23 3 1	5 1 1	1
	> 50	6	9	1	1	0
Hallucino-	Once	7	5	9	7	3
gens	2-10	21	11	10	7 4 3 0	3 3 2
•	11-50	7	11 12	0	3	2
	> 50	21 7 2	1	0	0	0
Narcotics	Once	1	,	16	2	0
	2-10	4	1 1 0	16 7 2	2 0 1	0 1 0
	11-50	o	1 7	5	ĭ	Ō
	111-30	1	1		•	•

Note. -- Data are frequencies of respondents.

